MBA CONNECT

Placement Guidance and Professional Networking Platform

SOFTWARE PROJECT MANAGEMENT

Project Plan Report

Submitted by

TEAM - 3

Submitted to

Dr. P. SRIDEVI

Professor

Department of Management Studies

National Institute of Technology, Tiruchirappalli

TEAM MEMBERS:

1. **Manoj Kavaskar J - 215124119**
2. **Praveen E – 215124073**
3. **K Srinivass - 215124040**
4. **Selvamani S - 215124123**
5. **Prabu S – 215124070**
6. **Mohamed Hazeem -215124055**
7. **Muthukumaran E -215124059**
8. **Lokesh Kumar - 215124117**

1. PLANNING

Purpose of the System

The purpose of the MBA Connect platform is to develop a secure, centralized, and data-driven digital platform that provides personalized placement guidance for college students, particularly MBA aspirants. By leveraging data analytics, the system will suggest relevant courses, skills, and target companies based on current market trends, the student's academic background, and career aspirations.

The ultimate goal is to empower students with actionable insights and tailored recommendations that enhance placement readiness and career success.

Target Audience

Primary Users

- **Students:** MBA students and students from other academic departments who want to strengthen their placement preparedness and career planning.

Secondary Users

- **College Administration:** Placement office staff and academic administrators who can utilize the platform for data analysis, event management, and official announcements.
- **Alumni:** Former students who can contribute through mentorship, networking opportunities, career guidance, and industry connections.

Scope and Functionality

The planning phase focuses on delivering a scalable, reliable, and secure web-based application with the following core modules:

1. **User Module –** Student registration, profiles, and preference settings.
2. **Placement Module –** Access to placement data, company information, and personalized job recommendations.
3. **Learning & Content Module –** Curated learning resources, skill-building content, and gamified assessments.
4. **Community Module –** Peer-to-peer interaction, alumni networking, and discussion forums.
5. **Admin Module –** Tools for administrators to manage users, events, and announcements.

In-Scope Deliverables:

- Data-driven recommendations for skill development and placements.
- Gamified learning and progress tracking.
- Community and networking features.
- Secure, centralized web access for all stakeholders.

Out-of-Scope (Intentionally Excluded in Initial Development):

- Native mobile application.
- Direct payment gateways for event ticketing.
- Advanced social media functionalities.

This focused scope ensures timely delivery, prevents scope creep, and establishes a solid foundation for future enhancements.

Module	Sub-Module	Functionality
User Module	Authentication	User registration, secure login, and password reset.
	Profile Management	Create and manage user profiles with personal, academic (MBA domain), and career preferences.
Placement Insights Module	Data Analysis Engine	Analyze college placement reports and market trends to generate personalized insights.
	Recommended Courses/Skills	Display a list of courses and skills to learn based on user's domain and market demand.
	Target Companies	Suggest companies to focus on based on job roles, income level, and user preferences.
Learning & Content Module	Quizzes & Lessons	Provide gamified quizzes, puzzles, and lessons on domain-specific MBA topics.
	Business News & Current Affairs	Feature a curated feed of business news and current affairs with dates.

	Case Studies	Offer a library of domain-specific case studies (e.g., Marketing, Finance).
Community & Events Module	Alumni & Student Collaboration	A public and private messaging platform for networking between students and alumni.
	User Profiles	View user profiles to identify and connect with other users.
	Events & Workshops	Host online events and manage registrations for offline events and competitions.
AI Chatbot Module	Query Resolution	An AI-powered chatbot to solve user queries related to placements and careers.
Admin Module	User & Content Management	Approve new users, moderate content, and manage official announcements.
	Analytics & Reporting	View basic reports on user activity, most sought-after skills, and placement trends.

2. SCHEDULING

Phases

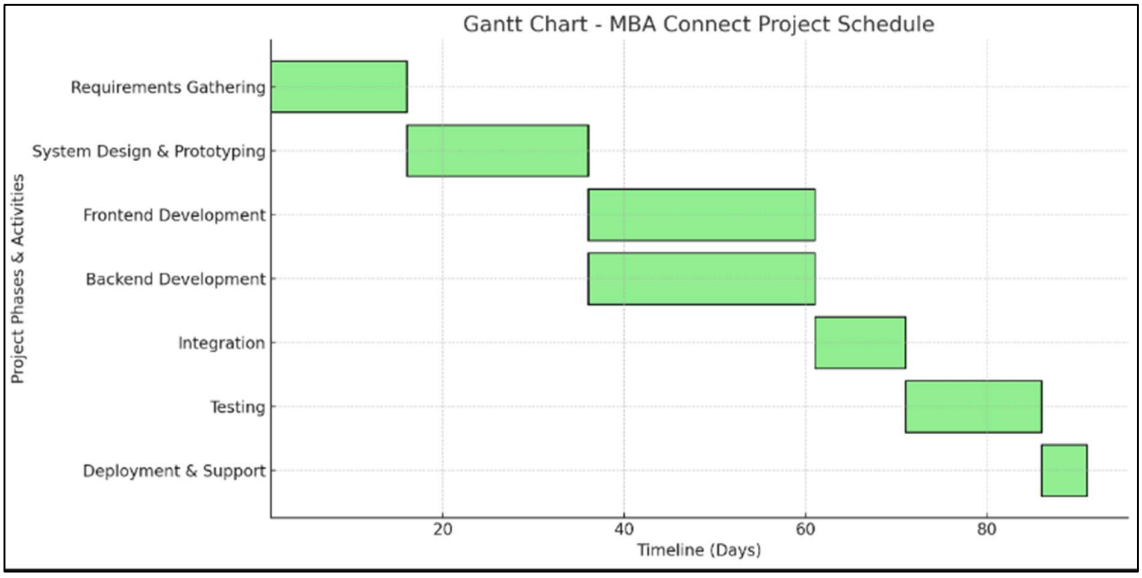
Phase	Description	Start Day	End Day	Duration (Days)
Requirements Gathering	Gather user needs from students and college administrators through interviews and surveys. Document and prioritize requirements to create a detailed functional specification document.	Day 1	Day 15	15
System Design & Prototyping	Design the overall system architecture, database schema, and backend API structure. This phase also includes creating visual wireframes and mockups for the user interface.	Day 16	Day 35	20
Development	Build the user-facing application (frontend) and the server-side logic (backend) in parallel. This phase also includes integrating the frontend with the backend.	Day 36	Day 70	35
Testing	Perform comprehensive unit testing, system integration testing, and user acceptance testing (UAT). Any bugs or performance issues are identified and fixed.	Day 71	Day 85	15
Deployment & Post-Deployment Support	Deploy the final, tested application to a live production environment. The team provides continuous monitoring and support to address any bugs or user issues after launch.	Day 86	Day 90	5

Gantt Chart

The project schedule for **MBA Connect** can be visualized using a Gantt chart, which shows the timeline of each phase and its associated activities. This chart helps in tracking progress and identifying any potential delays.

Timeline:

- **Requirements Gathering (Days 1-15):** A single, linear activity.
- **System Design & Prototyping (Days 16-35):** Sequential tasks for system design, database schema, and UI/UX mockups.
- **Development (Days 36-70):** Frontend and Backend development run in parallel, followed by a separate integration period.
- **Testing (Days 71-85):** A series of sequential tests (unit, system, security, UAT).
- **Deployment & Support (Days 86-90):** Quick, sequential tasks for setup, deployment, and initial support.



Tasks

Phase	Activity	Task Sequence
Requirements Gathering	Collecting Details	Conduct stakeholder interviews to gather needs for placement data, content, and collaboration features.
		Collect user data using surveys.

	Analyzing Details	Document and analyze the functional and non-functional requirements.
	Finalizing Scope	Finalize the features and services for the initial release.
System Design	Develop System Architecture	Design the high-level system architecture for the application and its modules.
	Develop DB Architecture	Develop the database schema to handle user, content, and placement data.
	Finalize Design	Finalize the technology stack and database schema after stakeholder discussion.
Prototyping	Develop UI/UX Wireframes	Create wireframes for all user modules, including the AI chatbot interface and personalized dashboards.
	Review with Stakeholders	Conduct a review of the prototypes for feedback and approval.
Frontend Development	Implement Frontend UI	Implement UI components for the dashboard, news feed, and community pages.
	Validate User Input	Implement input validation and error handling for user forms.
	Optimize for Devices	Optimize the UI for multiple devices and screen sizes.
Backend Development	Implement Backend APIs	Implement APIs for placement insights, messaging, and event management.
	Implement Data Security	Implement authentication, authorization, and data encryption.
	Integrate with DB	Connect backend APIs with the database.
	Develop AI Chatbot Engine	Build the core logic and train the AI chatbot to answer common queries.
Integration	Connect Frontend and Backend	Connect the frontend UI with the backend APIs.
	Verify Data Flow	Test the data flow between frontend and backend.
	Resolve Integration Issues	Identify and resolve bugs from the integration.

Testing	Perform Unit Testing	Write and execute unit test cases for each module (e.g., placement recommendations, chatbot logic).
	Perform System Testing	Test the interactions between all systems (e.g., chatbot API with the frontend).
	Perform Security Testing	Conduct security tests for vulnerabilities.
	Perform UAT	Conduct User Acceptance Testing with select students and administrators.
Deployment	Application Deployment Setup	Set up the production environment.
	Application Deployment	Deploy the tested application to the production server.
	Final Check	Perform a final check to ensure the application is functional.
Post-Deployment Support	Monitoring the Deployed App	Continuously monitor the application's performance.
	Resolving Issues	Address and fix functional or user-reported bugs.
	Gathering Feedback	Collect user feedback for future enhancements.

Resources

Task	**Resource Name**
Conduct Stakeholder Interviews	Business Analyst
Collect data using surveys	Business Analyst
Document and analyze needs	Business Analyst
Finalize requirements	Business Analyst, Project Manager
Design High-Level System Architecture	System Architect
Develop DB Schema	Database Architect
Finalize framework and DB schema	Project Manager, System Architect, Database Architect
Implement UI components	Frontend Developer

Implement Input Validation and Error Handling	Frontend Developer
Optimize UI for Multiple Devices	Frontend Developer
Implement APIs	Backend Developer
Implement Authentication and Data Encryption	Backend Developer
Integrate APIs with other systems	Backend Developer
Connect Frontend UI with Backend APIs	Frontend Developer, Backend Developer
Integrate with the database	Database Engineer
Verify Data Flow and Resolve Integration Bugs	QA Engineer
Write and Execute Unit Test Cases	QA Engineer
Test the Interactions Between Frontend and Backend	QA Engineer, System Integrator
Perform Security Testing	QA Engineer, Security Analyst
Conduct User Acceptance Testing	UI/UX Tester
Set Up Production Environment	DevOps Engineer
Deploy the App to Production Servers	DevOps Engineer
Monitor Performance Post-Launch	Support Engineer
Fix functional and user-related issues	Support Engineer

EFFORT AND SCHEDULE ESTIMATION FOR THE MBA CONNECT APPLICATION:

A) COCOMO '81 (Basic Model)

The COCOMO '81 Basic Model provides a high-level estimate of effort and schedule. It classifies software projects into three modes based on their size and complexity: Organic, Semi-Detached, and Embedded.

- **Mode Selection:** The MBA Connect application is a complex, custom-built web platform that integrates several distinct functionalities like a **data analysis engine, an AI chatbot, and a community forum**. It requires a diverse team with varied experience, including **backend, frontend, and AI/ML engineers**. This complexity and team structure place the project firmly in the **Semi-Detached mode**.
- **Size Estimation:** Based on the scope and functionality, the application is estimated to require approximately 50 KLOC (Thousand Lines of Code).
- Calculations for Semi-Detached Mode: The formulas for this mode are:
    i. Effort (in Person-Months) = a∗(KLOC)b = 3.0 * (KLOC)^1.12
    ii. Schedule (in Months) = =c∗(Effort)d = 2.5 * (Effort)^0.35

Using the estimated size of 50 KLOC, the calculations are:

i. Effort = 3.0 * (50)^1.12 = 3.0 * 87.1 = **261.3 Person-Months**

ii. Schedule = 2.5 * (261.3)^0.35 = 2.5 * 8.35 = **20.875 Months**

The estimated team size would be the total effort divided by the schedule:

Team Size = 261.3 / 20.875 ≈ 12.5 people

B) COCOMO (Intermediate Model)

The Intermediate COCOMO Model refines the basic model by incorporating a set of 15 cost drivers that adjust the effort estimate based on project characteristics. Each driver has a multiplier value (e.g., Very Low, Low, Nominal, High, Very High) that is multiplied together to get an Effort Adjustment Factor (EAF).

- Selected Cost Drivers for MBA Connect: Based on the project plan, the following cost drivers are highly relevant:
    i. **RELY (Required Software Reliability): High (1.15)** - As a student-facing tool for placements, reliability is crucial.

ii. **CPLX (Product Complexity): High (1.15)** - The data analysis engine and AI chatbot are highly complex.

iii. **AEXP (Application Experience): Low (1.13)** - The team has low experience with this specific, unique application type.

iv. **TOOL (Use of Software Tools): High (0.91)** - Modern development practices and tools are being used.

- Effort Adjustment Factor (EAF) Calculation: The EAF is the product of the selected cost driver multipliers.
    i. EAF = 1.15 * 1.15 * 1.13 * 0.91 = 1.45
- Calculations for Intermediate Semi-Detached Mode: The formula is:
    i. Effort (in Person-Months) = a∗(KLOC)b∗ EAF = 3.0 * (KLOC)^1.12 * EAF
    ii. Schedule (in Months) = c∗(Effort)d = 2.5 * (Effort)^0.35

Using the same 50 KLOC estimate and the calculated EAF, the estimates are:

i. Effort = 3.0 * (50)^1.12 * 1.45 = 3.0 * 87.1 * 1.45 = **379.05 Person-Months**

ii. Schedule = 2.5 * (379.05)^0.35 = 2.5 * 9.53 = **23.825 Months**

The refined team size would be:

Team Size = 379.05 / 23.825 ≈ 15.9 people

The Intermediate COCOMO model provides a more realistic estimate by accounting for the project's specific complexities, resulting in a higher predicted effort and schedule compared to the basic model.